EXHIBIT F

REPORTER'S RECORD

VOLUME OF VOLUMES

TRIAL COURT CAUSE NO. DC-12-14350

LINDA BATISTE	(	IN THE DISTRICT COURT
vs.		
JOHN ROBERT MCNABB, M.D.,	(	DALLAS COUNTY, TEXAS
JOHNSON & JOHNSON, AND		
ETHICON, INC.	(	95TH JUDICIAL DISTRICT

TRIAL PROCEEDINGS

On the 28th day of March, 2014, the following proceedings came on to be held in the above-titled and numbered cause before the Honorable, Judge Ken Molberg Presiding, held in Dallas, Dallas County, Texas.

Proceedings reported by computerized stenotype machine.

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P R O C E E D I N G S

(Jury Out)

MR. GAGE: Good afternoon, Your Honor.

THE COURT: How are you?

MR. GAGE: Good. One, pursuant to the side-bar that we had during Dr. Hinoul's examination, I have a very short proffer to make, and then I have no further questions of the witness. But given that we need to get Dr. Thames on and off the stand today, I discussed this with Mr. Cartmell, and he is agreeable if it's agreeable with Your Honor that on Monday I would make the proffer, if Your Honor is okay with that. And then also on Monday, Mr. Cartmell and I would each introduce the exhibits on the record that we used with the witness.

THE COURT: That's fine with me.

MR. CARTMELL: Fine with me.

THE COURT: How are y'all going to get him on and off today?

MR. GAGE: We can do it.

THE COURT: I'm going to let the Jury go a little bit earlier.

MR. CARTMELL: We're shooting for four. Were you are thinking 3:30? We can maybe do that.

MR. NOTEWARE: I'll see if I can pare it

down. We'll just go as quickly as we can.

Dr. Hinoul, we're not going to ask any more questions. We would like for him to be released, Your Honor.

MR. CARTMELL: Well, now, that's a whole other issue. I'm kidding. We agree.

MR. CAPSHAW: No objection, Your Honor.

MR. CARTMELL: No objection.

THE COURT: All right, sheriff, line them up.

(In Presence and Hearing of the Jury)

THE COURT: Be seated. Please. The Defendants may call their next witness.

MR. NOTEWARE: Your Honor, defense will call Dr. Shelby Thames.

(Witness sworn)

DR. SHELBY THAMES,

having been sworn, testified as follows:

DIRECT EXAMINATION

Q. State your name for the record, please, sir?

A. Shelby Freeland Thames, T-h-a-m-e-s.

Q. Where do you live, Dr. Thames?

A. I live in Hattiesburg, Mississippi.

Q. I am calling you a doctor, you are a doctor, are you not?

A. I have a Ph.D., yes, sir.
Q. Let's talk about -- you're are not a medical doctor?
A. I am not a medical doctor.
Q. Let's talk about what your academic credentials are, please?
A. All right.
Q. Where did you do your undergraduate work?
A. University of Southern Mississippi.
Q. And you have a degree?
A. Yes, sir, in chemistry.
Q. Then?
A. A masters degree in chemistry from Southern Miss, Ph.D. in chemistry, organic chemistry, and analytical chemistry from the University of Tennessee.
Q. And you got that Ph.D. in that year, please?
A. 1964.
Q. Did you get full-time employment thereafter?
A. I sure did.
Q. And where did you go to work?
A. University of Southern Mississippi, 52 years ago.
Q. And in what capacity did you start at Southern Miss?
A. As an Assistant Professor of Chemistry.

Q. Tell the Jury, if you would, please, go through the various positions, then that you've held at -- well, are you still at Southern Miss?

A. I am, sir.

Q. All right. Tell the Jury your various positions that you've held at Southern Miss during this period of time?

A. I have been an Assistant Professor, excuse me, before that an instructor, an Assistant Professor, Associate Professor, full professor, a Dean, Vice President, Executive Vice President, President of the University and now Distinguished University Research Professor.

Q. You were actually President of the University for a period of time?

A. Yes, for five years.

Q. And you're still there?

A. Yes, sir.

Q. Still working there?

A. Yes, sir, I am.

Q. And let's put up on the screen, if you would, please, Jamey.

Where do you work, in what building?

A. In the Polymer Science Research Center, sir.

Q. And what's the name of the Polymer Science

Research Center? What is the name on the building?

A. Shelby Freland Thames Polymer Science Research Center.

Q. Why is your name up there on that building?

A. They had to put somebody's name up there.

Q. Who is the one that started the department?

A. I did.

Q. It wasn't there before you got there?

A. No, sir, it was not.

Q. What would you say your profession is then?

A. Well, I'm a polymer scientist. I'm a coatings expert, I've been involved in the coatings arena since 1964.

Q. Let's tell the Jury what a polymer scientist is, to begin with.

A. Well, the way I like to describe it is that a polymer scientist is a molecular architect, much as an architect will design a building for a specific purpose, a polymer scientist will design a molecule for a specific purpose.

That's about the best I can do, sir.

Q. That's good enough.

A. All right.

Q. You indicated that you have a specialty within polymer science?

A. That's correct.
Q. What is that specialty?
A. My specialty is in coatings. And everything --
Q. What do you mean by coatings?
A. Well, most everything is coated. For instance, the glasses I have on have a coating, any of those wearing glasses. Contact lens have coatings. Coatings on top of this glass. Coatings on the light fibers, on automobiles. On almost everything you touch, see and use has a coating on it. The one thing that a coating must have is, that it must adhere, stick to a surface. If it doesn't stick to the surface and adhere tenaciously, it's not a coating, it's something else.
Q. That's been your subspecialty, your specialty within polymer science, sir?
A. That's correct, sir.
Q. Have you received any honors during the course of your career?
A. A few.
Q. All right. Were you ever named the, let's put that on the board, the Coating R&D Person of the Year?
A. Yes, sir, I was.

Q. Have you published any articles?
A. Yes, I have.
Q. Tell the Jury about the kind of articles you published, and the numbers of articles that you published?
A. In my profession you do research, you look at different kinds of chemistry and you uncover knowledge that people have not uncovered and you publish those in manuscripts or journal articles. And I have published approximately 160 manuscripts.
Q. How about presentations, have you made any presentations?
A. Yes, sir, I have.
Q. About how many?
A. Approximately 160 as well.
Q. Let me hand you a copy of what has been marked as Defendant's Exhibit 10739 and ask you if you could identify that for us, please.
A. Yes, sir, I can.
Q. What is this?
A. That's my curriculum vitae. It talks about what I've done over the last several years.
Q. And these are all the presentations and the articles and this kind of stuff that you've done over these years?

A. Yes, sir.

MR. NOTEWARE: Your Honor, we would offer then Exhibit 10739 into evidence.

THE COURT: Any objection?

MR. CARTMELL: No objection, Your Honor.

THE COURT: Admitted.

Q. Have you been a teacher during the course of your career?

A. Yes, sir.

Q. And taught what levels of students?

A. I've taught undergraduate students at the baccalaureate level, at the masters level, at the Ph.D. level. Also we have individuals who have obtained a Ph.D. who come to our institution who want to know about a field, in this particular case polymer science, they're called postdoctoral fellows and we have those in our group and we do research as well.

Q. Do you do research?

A. Absolutely.

Q. What kind of research have you done, sir?

A. Well, I'll tell you a couple of them that's most recent. Most recent, my group has developed a soy protein adhesive that is to replace formaldehyde. Formaldehyde is a toxic agent and it's used in particleboards to adhere the fibers of boards together

such as medium density fiberboard and wallboard and things of that type. We developed a soy protein fine adhesive to replace that. We're in the process of commercializing it now.

We've also developed some vegetable oil macro chemistry, macro technology chemistry in which we're using vegetable oil in waterborne latex paints that have no odor at all. You could be painting in this courtroom and you wouldn't know it unless you saw the individual doing it. You would never smell it.

Those are two of the most current things we're dealing with and those are patented processes.

Q. You hold multiple patents?

A. Yes, sir.

Q. Now, this case is about mesh made from polypropylene.

A. Yes, sir.

Q. Have you ever specifically studied polypropylene before you got involved in this mesh litigation?

A. I've not done research on polypropylene. I've taught polypropylene in my classes as a thermoplastic polymer. There are two general categories of polymers, a thermosetting, meaning if you heat them they will set, become hard; and then

thermoplastic, meaning if you will heat them they would become ductile and moldable. Then when you cool them, they'll stay in that shape. So polypropylene is a thermoplastic material.

Q. Do you feel then that your training and education, your experience has taught you to be able to be here before this Jury as an expert to talk about polypropylene?

A. Yes, sir, I do.

Q. And its characteristics, and its degradation, its deterioration or oxidation of it?

A. Yes, sir, I do.

Q. When you approached this project -- first of all, have you looked at other polymers? Is polypropylene a polymer?

A. Absolutely.

Q. Have you looked at other polymers to do the same kind of work with that you've done in this case?

A. Hundreds of them.

Q. Did you use the same methodology in other instances that you used in this case?

A. Yes, sir.

Q. I just said that polypropylene is a polymer.

A. Yes, sir.

Q. What is a polymer?

A. Well, if we break the word down, polymer, it's p-o-l-y-m-e-r. Poly means many, and mer means single units. And the way I like to explain that is if you talk about a chain, any kind of chain that you might have that has links in it.

Each of the links would be a mer unit. As you enhance those links and you hook them together, you can build a longer and longer chain.

And that, in effect, is what we do with molecules. If we take one molecule, hook it to another one, and hook that one to another one, another one, we end up with a polymer which is many mer units.

So that's a polymer, big molecule s huge. Molecules.

Q. What is polypropylene then?

A. Polypropylene is a large molecule made from propylene, a monomer. Propylene is the monomer.

Q. Do you want to diagram that for us or no?

A. I'd be happy to.

MR. NOTEWARE: Is it all right, Judge, if he approaches the whiteboard?

Q. Tell the Jury what you're going to show them and then show it to them.

A. I'm going to show you the monomer propylene, and then I'm going to show you how it's made into

polypropylene, and then we'll talk about that.

The monomer is the CH2. Now, C is a carbon atom and H is a hydrogen atom, so that's the monomer.

And then you -- that's -- and then you can add a little heat to that and pressure and an initiator and you end up with a polymer, and this is polypropylene.

Now, the reason that I put brackets around this and an X is because this goes on and on and on until the size of this molecule becomes essentially 330,000.

Now, each of these individual units right here is a weight of 42. That's the atomic weight. They have to have a weight, so it's 42. Well, if it's 300,000, that's about 8,000 of these that have to be in a row, if my math is right, to give you the molecular weight of a typical polypropylene molecule we'll be talking about today. So that's a long-chain molecule like so, long chain of about 330,000. Total molecular weight.

Q. I note that you've only used C&H?

A. Yes, sir.

Q. C stands for?

A. C is for carbon.

Q. H is for?

A. Hydrogen.

Q. Now, is it somehow important that the composition of polypropylene is made of only carbon and hydrogen?

A. It gives it some distinct characteristics in that if it's only carbon and hydrogen it has resistance to a lot of external environmental forces that might otherwise attack it.

For instance, if water is the most damaging forces in nature, and water would attack a material that was subject to hydrolysis by water, a breaking apart.

Q. Is it called a universal solvent?

A. Yes, it is, water is.

This molecule has nothing that would indicate its affinity for water. It doesn't like water. It's not permeable to water. It's not soluble in water.

Acids and bases, typically under normal conditions will not attack it. So it's inert, but it's not totally inert.

Q. Inert means?

A. Inert means doesn't like to react, doesn't react. But everything will react under some condition, this is not a totally inert molecule, but inert with regard to other chemical species.

Q. Okay. Great. Enough?
A. Yes, sir.
Q. Can you good back and sit down?
A. Yes, sir.
Q. I will tell you my next question so you can be thinking about on the way up there.
What is PROLENE?
A. That's polypropylene, sir, isotactic polypropylene. The isotactic parts means that CH3 group that I've drawn up there is on the same side of the molecule. If you have the long carbon chain it's one right after the other, on the same side of the molecule.
Q. So polypropylene is an isotactic polymer?
A. Yes, sir, it is.
Q. Okay.
A. It's isotactic polypropylene.
Q. Now, does the PROLENE have -- is it pure polypropylene?
A. No, sir, not the PROLENE that's manufactured by Ethicon, it is not.
Q. And what has been added to the polypropylene to make it into PROLENE?
A. PROLENE is a formulated product which means that there's some ingredients that have been added to

improve its performance properties. In the case of PROLENE, it's Prokel LA, which is a flow control agent, slip aid, calcium stearate, the same sort of material. There's a colorant to show that it's blue, and then there's two antioxidants that are added. The antioxidants mean they ward off oxidation.

One of them is called Santonox R, and the other one, get ready, is called dilauryl thiodipropionate.

The synonym for that is DLTDP.

Q. DLTDP?

A. Yes, sir.

Q. I will promise you that I ain't going to call it whatever you said it was to begin with.

A. Thank you.

Q. All right. Now, tell us very quickly how PROLENE is manufactured.

A. First thing you do is that you take propylene and the reactor and there's a big vessel or reactor and you add these ingredients to it, which is in this case propylene and it's under heat and a little pressure. Zeigler-Natta, Z-e-i-g-l-e-r N-a-t-t-a, catalyst is added.

The reaction takes place in one molecule after the other, attaches just as I've shown here,

until you get a very high molecular weight species of in the range of 330,000. It's big, a big molecule.

Q. You've added the additives in as well?

A. Yes, sir. You take those materials that come out of the reactor -- I'm sorry, I should have said that it's in a solid form you take those you grind them up and you put them in a hopper along with the additives that I've talked about, and the hopper drops into a unit with a heating vessel in it. It mixes it and grinds it and heats it up, so that it's a fluid.

Just like taffy, hot taffy.

This instrument will also, under pressure will push that hot fluid out through a die, and that's the formed object that's been machined and it will come out as a string, as a fiber. And we'll be talking about polypropylene fibers, and that's how it's made, sir.

Q. I'm not sure any of these jurors can remember, but remember the days that you used to grind hamburger at home or used to grind, I did cranberries?

A. I remember the hamburger days. Some of you may have seen where you put your hamburger meat in the top and you grind it, and it extrudes out in hamburger fibers.

Well, this just happens to be a similar

approach here.

Q. So what we have then as PROLENE is a polypropylene in a fiber form that has the additives mixed in with it, is that correct?

A. Yes, sir, it is.

Q. We've gotten this far.

Now, let's talk about what's been talked about in this case.

First of all, there's been a discussion of degradation, in other words, deterioration of the polypropylene fibers or the PROLENE fibers.

What does degradation days mean to you, sir?

A. Well, to me degradation means that there has been an effect upon the product, some product, whatever it is you're talking about, that will alter its ability to perform its intended purpose.

In other words, degradation is such that it just can't do what you expected it to do at the outset of use.

Q. Dr. Jordi was here several days ago and talked about three ways in which a polymer can degrade. He indicated oxidation, environmental stress cracking and mechanical degradation. Would you say those are the three the primary methods of degradation of a polymer?

A. Well, those are three ways. Some polymers are not subject to environmental stress cracking but there are three ways.

Q. He ruled out, however, environmental stress crack, said that really wasn't an issue here, and mechanical degradation. And said the only way that he was going to be talking about degradation with regard to PROLENE would be oxidation. Is that fair enough, could we do that?

A. Yes, sir.

Q. Okay. Before we talk about oxidation, though, let's talk about if you have the degradation, the deterioration of the -- of the polypropylene, of the PROLENE, what would you expect to find? You're going to be examining some PROLENE mesh, what would you expect to find?

A. If you have oxidation of isotactic polypropylene, the material that we're talking about today, there are a few things that you would be able to find as a scientist.

Number one, you would find a reduction in molecular weight. And I talked about this long chain, and the molecule was 332,000. You would have -- the chain would be cleaved in two, just like you took a pair of scissors and snipped it in two.

So you would no longer have the long polymer, you would have a shorter polymer. That's one thing. So a loss in molecular weight would accompany degradation.

The next thing that you would have is the degradation process would be produced, more than likely in the context that we're talking about, oxidation. So that means that you have to add oxygen to polypropylene if it oxidizes, because that is the definition of oxidation is adding oxygen. You add oxygen to iron, and you get iron oxide, that's rust. You add oxygen to polypropylene and you will get an oxygen containing derivative of polypropylene.

So you would expect that.

You would also expect that the mechanical properties of polypropylene would drastically be affected in a negative way.

For instance, if I take this long chain polypropylene molecule, it has a certain strength, we call tensile strength. It has a certain elongation. Tensile strength is a strength, that when you begin to pull the molecules, you can pull it and pull it and pull it and they'll straighten out, straighten out, and then finally they'll break. That's called the tensile strength at which that breaks is called the ultimate

tensile strength. In other words, that's its strength in terms of mechanic stress.

If you talk about how far do you have to pull it before it broke, that's the elongation.

How far could I elongate it if I start out with 1 inch of the material? Can I go to 2 inches or 3 inches or 4 inches, before it breaks?

So that's tensile strength and elongation, and those two features would dramatic decline if I had chain cleavage of that molecule, and I think it's easy to understand. If you think about a bowl of spaghetti all of us have cooked spaghetti. At my home my wife takes the spaghetti she gets at the store and she breaks it in two, and I asked her why do you do that. She said, well, if I don't do that I get such long strands that it's all entangled and I can't handle it.

And I said, well, why don't you try that, and I challenge you to do that, when you go home take one of those strands and see if you can pull it out of that mass without breaking it. The answer is no. The reason you can't is because all of those strands intertwined, intertangled, twisted together.

That's what happens in polypropylene, that they do that actually, and therefore, that's what gives them their strength. When you begin to pull them, then

you elongate those strands. Instead of being wadded, they begin to line up to each other, slide by each other.

Q. I am going to stop you right there because we've talked about two ways in which polypropylene degrades, or that you can see manifestations of the degradation of the polypropylene.

A. Yes, sir.

Q. Number one, decrease in molecular weight?

A. Yes, sir.

Q. I want to go back about that and then we'll talk about this other. Let's talk about decrease in molecular weight.

Define again for us what molecular weight is?

A. It's the atomic mass of each atom in the species. For instance, every one of those carbon atoms has an atomic mass of 12. Every hydrogen atom has an atomic mass of one. And every polypropylene molecule has a total mass of 42, because there's three carbons, and there's -- there should be a three on that top CH.

Would you correct my mistake for me, please, sir?

Q. Right here?

A. Yes, sir. You did real good.

So there's six of those, and there's three

carbons, there's 36, plus six is 42.

So every propylene molecule has atomic mass of 42.

Q. Now, have you had a chance to review the seven-year dog study that was prepared by Ethicon, Inc.?

A. I have.

Q. That is Defense Exhibit 10791, counsel.

What was the seven-year dog study all about?

A. The seven-year dog study was an implantation of sutures, the polypropylene sutures, in dogs, and to ultimately determine their stability in the in vivo environment, the flesh environment of a dog. And they, after several years, they began to take these -- these explants were removed, and they tested them for various physical properties. And at seven years, which was the final testing of the seven-year dog study, they evaluated the materials, and they did an evaluation for molecular weight to determine, well, is the molecular weight of this polymer the same.

Q. I'm going to stop you right there. You're going to go on and I want to talk about molecular weight.

A. Okay.

Q. After they explanted the sutures from the in

vivo, the tissue, then they determined what the suture molecular weight was as opposed to what?

A. The molecular weight of the original starting material called the pristine polypropylene. The material that had never been placed in an animal, never been in use.

Q. All right. Let's look, then, at some of the findings here with regard to the -- this dog study.

Here we've got -- are these two different molecular weights?

A. Yes, sir.

Q. Are they multiplying, dividing doing something different? How come we have two up there?

A. One of the molecular weights, the smaller one is called number average molecular weight, and the larger one is called weight average molecular weight and that's just normal sort of a discussion.

This particular molecular weight right here is the total mass of molecules divided by the number of molecules. That's why it's smaller, whereas the 327,000 is the total mass of the molecule divided by the weight average of the molecules in question.

And over -- but that's the two molecular weight numbers that were determined for the nonused pristine brand-new polypropylene.

Q. All right. So we've got the -- it says current/old PROLENE, that's the new, and the other one is the dog 1995. So we've got the M sub W is 327 for the dog, and 324,000 for the pristine, and 59,00, and 60,000?

A. Yes, sir.

Q. Are those statistically equivalent?

A. Yes, sir, they are.

Q. And why would you say -- because if the truth be known one, is higher and one is lower than the pristine?

A. The test that's used, the gel permeation chromatographs is a plus or minus 10 percent in terms of its accuracy. So those numbers could go up by 10 percent or down by 10 percent. They're extraordinarily close, I might add.

Q. All right. And the results then indicate no degradation has taken place.

The second one, before I get to that, there is another portion taken from the dog study?

A. Yes, sir.

Q. And are the findings essentially the same?

A. Yes, they are.

Q. Then what did the dog studies conclude with regard to degradation in terms of molecular weight?

A. There had been no molecular weight degradation of the suture that was implanted in the dog after seven years of exposure in vivo in the animal. No molecular degradation.

Q. And how is that significant, or why is that significant?

A. Well, it's significant because it says that the implantation environment in the tissue in the dog did not adversely affect the polypropylene at all. In other words, it was inert to the body, in regards to loss of molecular weight.

Q. You've seen Dr. Jordi's report?

A. Yes, sir.

Q. Did Dr. Jordi do a molecular weight analysis?

A. He did.

Q. And what were his findings?

A. They were essentially the same as the dog studies after seven years. He found no significant difference in molecular weight as well.

Q. Okay. Let's shift to the other aspect. We talked about molecular weight, now let's talk about the other, the loss of tensile strength.

A. All right, sir.

Q. Let's talk about it in terms of toughness?

A. Okay.

Q. What is toughness?

A. Well, toughness is the area under a curve, and the Jury doesn't have a curve yet to look at, that is a composite of --

Q. How is that?

A. May I step down, please? Is that all right?

Remember, I told you about the pulling of the sample and how much energy it would take, force it would take to break the sample, and then how much it would be elongated when it finally broke.

What we've done here is we've shown a strong -- stress is tensile strength, that's how much energy, a force it would take to break it. Strain is how much it would be elongated. So one is elongation, the other is the force to break the sample. You can characterize polymers as strong but not tough, strong and tough, or not strong and not tough.

Well, in the case of a curve like this, where you had a lot of force going up and up, and then finally it broke, you would compare that to the blue line where it has longer and longer elongation, and finally it broke. And finally to the green line where you didn't take much force at all to stretch it and it stretched farther and it broke.

Q. Now, there's obviously more area, more stuff

under the blue line than there is the other two?

A. That's right. If you calculate the area under this curve, and the area under this curve, and yet the area under this blue curve, you will see that the area is much larger under the blue curve. And area under the curve is a measure of toughness.

Q. So in this case that which is under the blue would be the toughest material, if these were three separate materials?

A. Absolutely.

Q. All right. Did you get data from the seven-year dog study that would enable you to determine what the toughness of these sutures were after they had been implanted for seven years?

A. I did.

Q. And let's look at that data.

A. This is the data from the seven-year dog study.

Q. We know it was at the end of seven?

A. Yes, sir.

Q. Let's look at what's in blue, because that's the PROLENE molecule that we're talking about today.

That look like it's yellow to me?

A. You're right. I don't know why I said blue, I guess I was thinking about that chart I was looking

at a moment ago.

Q. All right.

A. This happens to be from the PROLENE study. This is the amount of force that it's going to take to breaker this sample.

Q. That's why it's called breaking strength?

A. That's correct. After seven years.

Q. Okay.

A. And you'll notice that after seven years the change from the original was 1.68 to begin with, 1.60 after seven. It lost 5 percent of its breaking strength in seven years. 5 percent.

Now, in terms of the elongation, it started out at zero here, so 37 percent, and after seven years it was 78 percent.

Now, if you take those two numbers and you plot them, you will get the next --

Q. Why don't we plot them and go to the next line.

A. Let's do that. Here it is.

Now, if you'll notice year zero, these are the numbers from that chart I just gave you from the seven-year dog study.

It requires 1.68 pounds to break this sample, and it elongated 37 percent. Here is your 37 percent,

here is your 1.68 pounds.

In the blue, which is the seven-year number it required 1.60 pounds and it was elongated 78.

Now, as a test to the Jury, I want you to think about which is the tougher. Remember toughness is the area under the curve. It's obvious that the seven-year dog polypropylene is much tougher than it was when it was placed in by surgery into the dog.

Q. Let's go back to those numbers, however.

A. Okay.

Q. Because there were -- you talked about two of them. You talked about the breaking strength, and you talked about elongation; but there is yet a third set of numbers, and that's called the Young's modulus?

A. Yes.

Q. What is the Young's modulus? How does this fit into this? Is it consistent, inconsistent?

A. Very consistent because modulus is stiffness, how stiff is something and the stiffer a material is, the higher the number is going to be. You see it lost 70 percent of its stiffness in seven years.

Now, you think about this, it got more elastic in seven years; therefore, it was less stiff or more pliable. That's completely consistent with the data.

Q. All right. The Jury just heard this morning talking about mesh needing to be elastic, is this indicative of the fact that the mesh over these seven years has become more elastic when it is tested for, under the Young's modulus, whatever that is?

A. Yes, it is.

Q. Is the increase in elasticity, is that something like plasticization?

A. Yes, sir.

Q. And that's another new term, what does that mean?

A. Well, if you plasticize something, you make it more pliable.

All of us have done work in the yard and things like that and our hands have dried out. They've gotten dry and the skin cracked. First thing you do when the hands begin to dry out, you go to the lotion bottle rub, and you rub the lotion on your hands and your hands feel so much softer after you've done that. What's happened is the lotion that you have used has soaked into your skin and it has allowed your skin fibers to slide by each other, and therefore, it's increased the elongation of your hand.

It's actually increased the toughness of your hand now because you've got a tougher hand, won't have

a tendency to crack.

If you didn't do that, your skin would crack which would mean it wasn't tough.

Q. Okay. Is there any evidence then, that can be gleaned from the -- this dog study and looking at it in terms of molecular weight and looking at it in items of tensile strength that would say that there was any degradation whatsoever of these sutures during this seven years that they were implanted in tissue?

A. No, sir. Not only did it not deteriorate, it actually got better. As you can see from the toughness slide that we pointed out here, it became a tougher material after the implantation.

Q. If we don't have the bad results from degradation, Dr. Jordi said the way in which you would find degradation the cause for degradation would be oxidation.

So let's talk about, then, whether or not there is any evidence that there was, in fact, oxidation of the tissue that was taken from Ms. Batiste, okay?

A. Yes, sir.

Q. Can polypropylene or PROLENE -- let's say polypropylene, I better say that.

A. Yes, sir.

Q. Can polypropylene degrade?
A. Yes. Polypropylene is the product that doesn't have any additives to it, right?
Q. Right.
A. Yes, it will degrade.
Q. If you have -- is that when the polypropylene would be oxidized, is that what you would call it?
A. Yes, sir.
Q. Would it be helpful for you to tell the Jury or show the Jury what an oxidized polypropylene molecule would look like?
A. It would be for me, if they don't mind.
Q. All right. What are you going to show us?
A. I'm going to draw a molecule and show you the oxidation of it. A molecule is going to be a polypropylene. Okay.

Remember, I put the brackets around here because this molecule goes on and on and on, I'm just going to put one segment out of that.

So if something oxidizes, it adds oxygen. And oxygen can exist in two forms. It can exist in the form that we would normally see it here or we can show it by having two pair of electrons.

If I take that molecule and put it with this molecule, I can under certain conditions do this. And

produce this radical, and I can take that hydrogen that I just pulled off of here and bond it to that oxygen.

So I've abstracted a hydrogen. I've bonded it here. Now, this is called the hydroperoxide. That can come -- and there are many reactions that can take place, I'm just showing you some of what can happen.

This can bond right here, now, these two form a bond, so now they're bonded together.

Then what can happen is one of these electrons can move this way, the other electron can move this way, and what we then will have is a species. Instead of redrawing this whole thing over, I'm going to modify this. And one of these electrons has got to come down here, and one will be left here. And I'll show you the result of just this unit in here.

CH2, CH3, C double bond O, CH2 with a radical, C, CH3, H. Like so.

Now, what I've done is I've taken this long chain polypropylene, I've added oxygen under certain conditions. I formed a hydroperoxide. I've extracted a hydrogen, and I've cleaved the molecule. I've reduced, I've taken a pair of scissors and I've cleaved it. I've cut it in two. I've reduced its molecular weight. If I reduce its molecular weight, I'm going to generate a polymer that has less tensile strength, less

elongation, and less toughness.

But what we will see, if we've actually done that is the presence of that particular group which is called a carbonyl group.

Q. We'll get to that in a minute.

A. All right.

Q. You have indicated that polypropylene can be oxidized.

A. Yes, sir.

Q. Is this something that Ethicon recognized before they started creating their PROLENE mesh?

A. Absolutely.

Q. You talked earlier about these two additives?

A. Yes, sir.

Q. And the two additives were?

A. Santonox R, R, and dilauryl thiodipropionate.

Q. And they are?

A. Antioxidants. They're put in there to keep that from happening.

Q. Okay. Did you have the opportunity to exam some of the explanted mesh that was taken from Ms. Batiste?

A. Yes, I did.

Q. And did you examine it to determine whether or not there was any oxidation present?

A. Yes, I did.
Q. And what was your conclusion after your testing?
A. There was none of that particular species in the spectra of the explant. There was no oxidation.
Q. No oxidation.
What types of testing did you use to determine whether or not oxidation was present?
A. I performed what is called a fourier transform infrared spectroscope determination. The acronym is FTIR. Right here.
Q. All right. Are there other testing that you did? Let's talk about all of the testing that you did of this.
A. Well, we looked at the fibers under a light microscope.
Q. Do you have a picture of that up there?
A. Yes, sir. The light microscope is right here.
Q. Okay.
A. And then we looked at it under scanning electron microscope, which is right there.
Q. Okay.
A. We then did the FTIR Fourier Unit, which is here.

Q. Then you actually measured the fiber size?
A. The fiber thickness right here on the bottom was measured while we had the sample in this unit right here. I'm sorry, my finger is moving a little bit but I can't keep it still.
Q. That's all right.
Now, where was all of this testing done?
A. In our laboratories in the Polymer Science Research Center.
Q. At Southern Miss?
A. Yes, sir.
Q. You didn't have to send yours out to Minnesota or to California or to somebody else to have it done, you had all of the equipment there?
A. Yes, sir.
Q. Okay. What product did you actually test? Describe to the Jury, tell the Jury what it is you actually tested?
A. We received a sample of the explant that was taken from Ms. Batiste and took that particular product and cleaned it, had it cleaned as best we could. Cleaned the material that was on the fiber from it, and then used that to do the light microscopy, and the scanning electron microscopy, and the FTIR, and the fiber thickness.

Q. Did you have what you earlier referred to as a pristine piece of mesh?

A. We did.

Q. That would be something as if it were just taken in the operating room, nothing done to it at all?

A. Right. And we -- we took the pristine piece of mesh and we sent it through the same cleaning process that the explant sample was sent through to make certain that if the cleaning process had an effect upon the mesh, we would see it, and that's what we refer to as the exemplar sample. It's an example, exemplar.

Q. So you want to have apples to apples, and you tried to clean the explant. So, therefore, you wanted to use the same process on the pristine so that in case there were some impact it would be equivalent to both, is that correct?

A. That is correct, sir.

Q. Okay. Now, Dr. Jordi did something he says is similar. He took a piece of pristine mesh and he put it in what he called formalin, and then heated it up for -- to 65 degrees centigrade for 48 hours.

Did you do that?

A. No, sir.

Q. And why didn't you do that?

A. Well, I don't really know why I would do it. I put -- took the pristine sample and put it formalin -- or excuse me. I ran it through the process. I never put it in formalin. I ran it through the cleanings process, and that was going to tell me whether or not the cleaning process had anything to do with determining or affecting adversely the pristine sample.

Q. Why is it important to putted it through a cleaning process? Why can't you just work with it as you got it?

A. When a surgeon removes the explant from a human body, it has tissue and flesh on it. It is very common, a common practice for the surgeons to try to preserve that sample. And when they do they drop it in formaldehyde as a preservative, and formaldehyde will react chemically with the proteins that are in the flesh.

And when formaldehyde reacts with the proteins that are in the flesh, it forms a casing around the fiber. It also functions as an armor or a shield. It's used by the histology people to fix the fibers. It's a well known process.

And so if you're going to look at the polypropylene fiber, you've got to get that off the

fiber. You've got this casing around. It's just like if this is the fiber, and I have a casing or a coating all the way around this, I can't examine that until I remove the coating or the shield that's there.

Q. Is this reaction between formaldehyde and protein, and tissue is protein, right?

A. Yes, sir. It contains protein, yes, sir.

Q. Is the reaction between formaldehyde and protein something that's been known for years?

A. It was published first, first that I seen of it in 1949. So this is a well known, long time chemistry concept that's been well known.

Q. So this is nothing new, nothing exotic or esoteric that you came up with?

A. No, sir. You see right here it was submitted for publication in 1948 and it was finally published in 1949.

Q. All right. Let's talk about the reaction then between the formaldehyde and the protein.

A. Sure.

Q. And this time, rather than make you come down, I'll put a formula on the --

A. Okay.

Q. I don't even know what that -- would you call that a formula, what is that?

A. Yes, sir, that's a chemical equation.
Q. Equation, that's the word I was looking for.
A. Yes, sir.
Q. Why don't you tell the Jury what this is all about.
A. Here again, if you don't mind, I need to step down so I can point.
MR. NOTEWARE: Is that okay, Judge?
THE COURT: Yes, sir.
A. What I've done here, I've shown you only a very small portion of a protein molecule.
THE COURT: Why don't you come out here, Doctor, I don't want you in that area.
THE WITNESS: Okay. No problem.
A. This is a small portion of a protein molecule. This has an active hydrogen group, and this is the formaldehyde molecule, very small. Carbonyl this group there. What happens is this group right here attacks this carbon atom, produces a hydroxyl group. And then that attacks another NH and bonds two protein polymers together with what is referred to as a methylene group.
And that happens again and again and again.
So because you have it in the solution as excess formaldehyde, and so you achieve a polymer of

immense molecular weight. So you've built a casing around the fiber. Immense molecular weight that's very, very difficult to remove.

Q. But you tried to remove it?

A. Yes, sir.

Q. Were you successful?

A. Not all of it, could not get it all off.

Q. But you got as much off as you could?

A. Yes, sir.

Q. Okay. You can step back up there, if you would, please, to the witness stand.

A. All right.

Q. Now, did you use chemicals in an effort to try to get this -- I guess this is a formaldehyde hydrogen cross linked polymer, is that correct?

A. Well, it's a formaldehyde protein polymer.

Q. Did I say hydrogen?

A. Yes. And it cross linked. If you think of the legs of a ladder as being a long chain polymer, cross linking means you would tie them together so you make a real rigid material. If you had a link this way, a link this way, a link this way, you tied them together by cross linking them, you would produce a very rigid molecule. And that's precisely what that casing is around that polymer, very rigid, brittle,

hard. Almost impossible to remove.

Q. And what did Dr. Jordi, based on his report, how did he go about trying to remove this new polymer that was formed with the reaction between the protein and the formaldehyde?

A. Dr. Jordi didn't look at the fiber itself. He dried the material that he received, which is the flesh that had been in formaldehyde. In reading his documents, he used the tweezers to pull off as much flesh as he could. What was left was dried and he rolled the fiber on a hard surface and material flaked off of it. And he analyzed the flakes. He never analyzed the fiber itself. By FTIR. He did analyze it by molecular weight, but he never obtained an FTIR which would allow you to see the carbonyl group, that we showed a moment ago and whether or not it's oxidized.

Q. Okay. Now, when the PROLENE is in the body is it encased in -- does it have some kind of soft bio film on it?

A. It has a bio film that is not yet cross linked. The proteinous material from the body that's encasing the fiber, but it's not cross linked until it's taken out and dropped in formaldehyde.

Q. Is it then kind of wet and oozy, or something

that's covering the mesh fibers?

A. Well, it would be fleshy like.

Q. But once you put it into the formalin and you fix it, how does it become?

A. Hard and brittle.

Q. All right. Let's look at -- well, let me ask you this.

What different types of tests then did you do on the pristine sample?

A. I looked at those samples under electron microscope and light microscope to be able to show you what a pristine sample that has not been exposed to the body would look like. A sample in its pristine form would look like.

Q. Jamey, can you show, 13, if you would, please.

I think the Jury ought to see what you had to work with.

A. Okay.

Q. On the left, this is -- what is this?

A. That's the exemplar. That was a piece of pristine polypropylene that was -- was carried along in the cleaning process. And we cut a piece off to do the microscopy work on it.

Q. All right. On the right is the total amount

of the mesh that you had to work with?

A. Yes, sir.

Q. So you didn't have a whole lot, did you?

A. No, sir, certainly didn't.

Q. Did you then try to determine a base line? Something to compare the mesh, the explanted mesh against?

A. Yes, sir.

Q. And is that why you did the testing of either the pristine mesh or the exemplar mesh or both?

A. Yes, sir.

Q. Okay.

A. We used primarily the exemplar mesh because it had been through the cleaning process just like the explanted material had.

Q. Let's talk then about the types of tests that you ran. First of all, what is an SEM, Dr. Thames?

A. SEM stands for Scanning Electron Microscope, microscopy.

Q. And what does it do?

A. It will show you a very high magnification and in great detail. It will give you a picture called a photomicrograph.

Q. Let's look at some of the photomicrographs so we can let the Jury see what you were seeing.

First of all, let's see, Jamey, a picture of the pristine TVT mesh.

A. Correct.

Q. This was the one just taken out of the box that had not been cleaned?

A. Correct.

Q. Okay. Go to the next slide.

A. That's at a magnification of 60 times.

Q. Okay. Then you looked at the exemplar?

A. Yes, sir.

Q. That which you would put through the same cleaning process?

A. Yes, sir.

Q. This is magnified so you can see it a little better, but it's at 203 times, right?

A. Yes, sir.

Q. All right. Then let's look at the Batiste explant under SEM magnification?

A. Okay. That's at 308 times magnification.

Q. All right. Obviously it looks different than what we've seen before?

A. Yes, sir.

Q. Why is this different? Explain to the Jury what the difference is?

A. The difference is the fact that this material

you see here is the residual protein formaldehyde polymer that formed around this fiber when it was placed into formaldehyde.

You can see the striation lines of the polypropylene that came from the dye. You can see those very clearly.

There is another observation here that is very practical, and I know you'll appreciate, is notice the difference in the distance between the cracks here and here. You'll notice the cracks here, the distance is much smaller than they are here.

And if you'll look at my arm here a moment, and assume my arm is the polypropylene fiber. It's totally encased, if I bend it this way I'm compressing the casing here, and I'm pulling the casing here.

So where there is a short distance between that's the compression, and where there is around the edge that's tensile, that means it's pulling apart. So that's why there is a difference in the actual width dimension between the two cracks.

So here is your polypropylene, and here is your proteinous material which we were not completely able to get rid of.

Q. Now, Dr. Jordi, when he was here, said that this material; not this material, he did say that this

was the fiber, but he said this also was part of the polypropylene, and it showed that it had cracked and degraded.

Now, do you agree that that's what that is, sir?

A. I do not.

Q. And first of all, let's talk about why you didn't?

A. Okay.

Q. Did you do a measurement of the diameter of each of the fibers?

A. I did.

Q. And did you do an analysis of the diameter of the exemplar?

A. I did.

Q. And did you do an analysis of the diameter of the fibers from the explant?

A. Yes, sir.

Q. Next slide, Jamey.

And are these the results of your measuring the diameter of these fibers?

A. Yes, it is.

Q. Now, if the cracked portion were polypropylene, that would mean some of it cracked off that would make the diameter smaller, wouldn't it?

A. Absolutely.

Q. But when you did your measurements, you found that when you measured the explant versus the exemplar, that the diameter actually became larger?

A. Yes, sir.

Q. So does that mean instead of just being polypropylene, you now have a coating over those polypropylene fibers?

A. That's precisely what it means, sir.

Q. It's not going to grow any other way, is it?

A. No, sir.

Q. So is that one of the reasons why that you feel that what was cracked off was not polypropylene from the fiber, but rather was this formaldehyde protein cross linked polymer? This stuff that encapsulated the fibers?

A. Yes, sir.

Q. Dr. Jordi indicated that there was -- actually, he called it two separator fibers. He said there was an inner fiber and an outer skin, and it was the outer skin of the polypropylene that actually cracked.

Did you, at my request, Dr. Thames, do a cross-section of the fiber that was taken from Ms. Batiste?

A. I did.

Q. And did you do did a cross-section of the pristine fibers?

A. Yes, sir.

Q. And if there were a skin around the pristine, then you would say that Dr. Jordi was correct, that there were are, in fact, two separate -- there was a core and a skin.

Did you find when you looked at the cross-section of the pristine whether there was, in fact, a core and a skin?

A. There was no core and a skin.

Q. Is this -- so that we can have some understanding, it talks about an epoxy embedding resin. What does that mean? Why did you do this, and how did this occur?

A. If you can envision a fiber, a thread sticking up like so, we're going to cut it right here, that's a cross-section. You have to embed it in something that's hard that would hold it in place.

And so we use an epoxy resin. You can buy them at Lowe's or any other place, clear, and they will set up very, very hard like glass. After it has hardened, then you take a polishing machine, polish the surface down so that it's smooth.

Then after you've done that, then you run your analysis. You do your light microscopy, and this is at 202 magnification. It's very obvious you can see there is no skin core here. All one material, no score, no skin on the outside. If there was, we would see a demarcation between the two. There would be some indication that there was a skin on the outside, kind of like a piece of sausage. A link sausage.

Q. All right. Let's go to the next kind of examination you did then, the FTIR?

A. All right, sir.

Q. What is the FTIR.

A. The FTIR, as I said, is a Fourier Transform Infrared spectroscopy. I can't even get the word out. And we use the attenuated total reflectants as the method to use.

Now, what you do to get that sample is you eradiate the sample that you're looking at with the entire spectrum of energy. And the computer within the machine will take that information that comes back and at various places on that chain there is characteristics about the polymer that you're looking at that will absorb energy at various places along the chain.

For instance, energy will be absorbed if a

molecule kind of wags a little bit, if the methyl group moves, the energy will be absorbed.

If there's a carbonyl group like the C double bond O that we said had to be present if it was oxidized, that's a very strong peak and you'll see it very evident in there.

So that's the fingerprint region, that's the fingerprint of polypropylene. Every individual molecule has a unique infrared spectra.

Q. Did you then -- is there a place that you can go to find out this fingerprint for polypropylene?

A. Yes, sir. You can go to the library, just like we go to the library, check out a book. We go to the library of spectra that's been put together by companies, and you can select for isotactic polypropylene, that is the -- the spectra that you would expect to see if you're looking at polypropylene unadulterated, unoxidized pristine.

Q. You've also indicated that in your opinion adhered to the fibers, the PROLENE, were these -- this new cross linked polymer. That which -- would be protein, correct?

A. Yes, sir.

Q. And did you go to the library to get a spectra graph?

A. Yes, sir, I did.
Q. For protein?
A. Yes, sir.
Q. Let's show that. So you got both of those?
A. Correct.
Q. And then you would do your examination and you would run it through the FTIR to see what? What are you looking for?
A. I'm looking for any indication that polypropylene was oxidized or that its structure was changed by virtue of being implanted in Ms. Batiste.
Q. You just indicated a minute ago that if you had oxidation, you would have an intense carbonyl peak, I believe you said?
A. Yes, sir.
Q. When you got Dr. Jordi's report did you find cited in that report an article that gave you an example of the peak you would find if the polypropylene had been oxidized?
A. Yes, sir.
Q. Let's look at that, if you would, please?
A. Yes, sir.
Q. And where is the carbonyl peak that's there on that diagram? This is from the Wood article that Dr. Jordi cited, is that correct?

A. Yes, sir. That peak is right here, sir. That's 1740 reciprocal centimeters, 1740, there you go. Thank you.

Q. This is Defendant's Exhibit --

A. This peak right here.

Q. Where it says over -- and this is actually from the article itself, where it says carbonyl peak, 1740?

A. Yes, sir.

MR. NOTEWARE: This is Defendant's Exhibit 10792, counsel.

A. Please note, sir, that it says explanted polypropylene, and from this amount it shows that that is the peak that's present when polypropylene has oxidized. And the blue peak is polypropylene that has not oxidized.

Q. Okay. So we have then -- it's clear, and that the whole point of the article is that in this case the polypropylene that was used there, which was not PROLENE had oxidized, correct?

A. Yes, sir.

Q. Now, what is it that is unique about carbonyl bonds?

A. Carbonyl bonds have the carbon atom attached to an oxygen atom and their polarity is much different

and as a result of that there's a shift of electrons moving toward the oxygen. And that, in effect, makes it very difficult to stretch that bond, and when it is it gives an intense peak.

So that particular functional group has an intense absorption frequency, and I'll just say that it has a high extinction coefficient, and let it go at that. That's why it's high.

Q. Did you run an FTIR analysis on the explanted fibers themselves?

A. I did, sir.

Q. And let's look at the next.

Is this the result of your FTIR analysis?

A. Yes, sir, it is.

Q. Tell the Jury what you see there, more importantly what you don't see there?

A. What I don't see is important, too. This peak right here, this peak right here, all of these peaks as a matter of fact, and all of these peaks right here are indicative of isotactic polypropylene in its unaltered state. There is no 1740 -- may I move around there to show?

Q. Yes. Just come down here, though, I think, Dr. Thames.

A. Yes, sir.

You would expect to see that 1700 right there. We would expect to see an intense peak right here, if that was oxidized polypropylene, just like the sample before we showed, this sample does not have that peak, it means it doesn't have a C double bond O, which means it's not oxidized.

Q. All right. Dr. Jordi did an FTIR, and it's configured differently, because he didn't use the same kind of FTIR machine that you used, did he?

A. No, sir.

Q. What kind did he use and how is it different from the one that you all used?

A. Well, we used attenuated total reflectance, meaning the light is shown on the sample and bounced back to the detector, shown again, bounces back. It's attenuated total reflectance.

He used the --

Q. Actually, Evens used it, but at his request.

A. Well, I used the attenuated total reflectance.

Q. Yeah.

A. What he used was transmission spectroscope, which required the light to go all of the way through the sample before it got to the detector. And when you do that, you have to be very careful about the

thickness of the sample that you use, because if it's too thick, you don't get enough light to go through and your spectra are not typically very good.

Q. All right. He did an FTIR analysis using this other method, and let's look at his results. If there had been oxidation, what would you have found, what would you have seen?

A. You would have seen a strong band right here going like this at 1740. See, this is 1661. This is 1760, that he has marked himself. The machine didn't mark this. So it would have been, right here would have been that strong band. That's what you would have to have or have to be seeing to confirm that you had oxidized polypropylene.

Q. There are numbers on there, and maybe we ought to explain to the Jury how the numbers get there. Who puts them there, what puts them there, how does that happen?

A. You can ask your machine, the operator can tell your machine to mark the significant peaks, the wave length of absorption of the significant peaks. And that's what the instrument has done, it's marked these significant peaks for this particular sample.

It did not mark this peak or this shoulder right here. As you can see, that's a different font,

and I think Dr. Jordi has agreed that he put that marking himself in there with an arrow. The machine didn't mark it because the machine said it's not significant.

Q. What does that tell you, then, whether or not the mesh that had been explanted from Ms. Batiste oxidized or not?

A. It did not oxidize.

Q. And can you say that with reasonable scientific certainty?

A. Yes, sir.

Q. Just a couple follow-up questions, Dr. Thames, and we're done.

A. All right, sir.

Q. You've done pretty well.

A. Thank you.

Q. First of all, do you have an opinion based on a reasonable degree of scientific certainty as to whether there was any evidence of degradation on the mesh that was taken from Ms. Batiste?

A. I do have an opinion.

Q. And what is that opinion?

A. There was no evidence of any kind that would suggest that there was degradation of Ms. Batiste's device that was implanted in her and explanted.

Q. Do you have an opinion, Dr. Thames, based on a reasonable degree of medical certainty as to whether or not there was any evidence of oxidation on the material that was explanted from Ms. Batiste?

A. Yes, I do.

Q. And what is that opinion?

A. My opinion is there was no oxidation, as I pointed out here in Court.

Q. Based on the foregoing, do you have an opinion, Dr. Thames, as to whether or not the TVT mesh performed as it was intended to perform from a chemical perspective?

A. I do.

Q. And what is that opinion?

A. It did perform as it was intended to do from a chemical perspective.

MR. NOTEWARE: I have no other questions.

THE COURT: All right, ladies and gentlemen, let's take a ten minute break and be back in ten minutes.

(Recess)

THE COURT: Be seated, please.

CROSS-EXAMINATION

BY MR. CARTMELL:

Q. Good afternoon, Dr. Thames.
A. Good afternoon.
Q. This won't take too long. It's Friday afternoon, everybody wants to go home.
I want to ask you some follow-up questions.
A. Sure.
Q. You testified, I believe, that you had never tested a polypropylene prior to getting involved in this litigation, is that right?
A. That's correct, tested, yes, sir.
Q. So you had never looked at polypropylene or tested polypropylene like the PROLENE mesh to see if it had degraded prior to getting involved in this litigation, is that fair?
A. That's correct.
Q. Now, prior to getting involved in this case, is it true that you have served as an expert witness on behalf of Mr. Gage's firm Butler Snow, several times over the last ten years?
A. Yes, sir.
Q. And I think you testified in your deposition that you've given -- you've served as an expert witness and given approximately 50 depositions?
A. Yes, sir.
Q. And what do you charge for your time?

A. $375 an hour.
Q. And how much have you charged in this lawsuit?
A. About 52 hours.
Q. And then in another case, I think you were paid about $120,000?
MR. NOTEWARE: Excuse me, Your Honor, I'm going to object. That goes beyond proper examination of this witness.
THE COURT: Sustained.
Q. You've worked on other cases during your career with Butler Snow? Mr. Gage's law firm?
A. Not other than the ones you've already mentioned, sir.
Q. No, I understand, but in another lawsuit you've charged and were paid about $120,000?
A. That's approximately right, yes, sir.
Q. How much do you think you've been paid by Mr. Gage's law firm over the last ten years?
A. I have no idea, sir.
Q. When you testified, I think you said in your deposition, 99 percent of the time that you have testified, it's been on behalf of a large corporation, is that right?
A. I don't think I said large corporation s I

said Defendants. And that's because I haven't been asked by Plaintiffs, I believe is the way I phrased it.

Q. In product defect cases it's on behalf of the Defendants who are corporations, correct?

A. That's correct.

Q. Let's take a look at Ms. Batiste's photos that Dr. Jordi took.

You've seen Dr. Jordi's report, obviously?

A. I have.

Q. And your testimony is that the surface area cracks seen in the SEM pictures that were taken from Ms. Batiste, your testimony is that is a formaldehyde protein polymer covering, sort of, is that right?

A. That's correct.

Q. You've also seen there's been other pictures from other explanted mesh from I believe 23 other women that were evaluated, have you seen those?

A. No.

Q. You never saw those?

A. No, sir.

Q. These are some of the photos that were reviewed by Dr. Jordi and provided in a report by him. It sounds like you haven't seen these. But is it your testimony that these would be a formaldehyde protein polymer covering over the mesh?

A. Based on what I see, that would certainly be my best estimate of that, yes, sir. Not only what I see, but what I know, I guess, is a better way to put it.

Q. When you did your testing, I think you mentioned some things about your process, and you may have mentioned this, but I think what you did was you soaked the sample from Ms. Batiste in different chemicals for about 180 hours, is that right?

A. I didn't add them up, but for a long time and that was necessary to attempt to get that armor of proteins and formaldehyde layer off of it.

Q. Have you ever seen any protocol or any publication that says that in order to test for degradation of polypropylene mesh that comes out of a woman, that it should be soaked in chemicals for 180 hours? Have you ever seen anything like that?

A. Well, I don't really quite know how to respond to your question because I don't know that it has anything to do with what I've just talked about or this case. Because what I've stated here is that this protein and formaldehyde has formed a casing around the fiber and that I have seen no standardized methods for cleaning samples. So I have to devise a method that is, in my view as a scientist, polymer scientist,

technique and knowing what's happened to the protein how it's polymerized, the best way to get it off. And it's a very tenacious material and it just doesn't come off very readily, sir.

Q. You've seen publications in the past, there are scientists, that lot of them that have published on whether or not polypropylene can degrade, right?

A. There are. And unfortunately, the vast majority of those individuals are not aware of the reaction, obviously are not, because they've used sodium hypochlorite in a few hours said the samples are clean and they're not. There's no way that you can clean that tissue and that protein formaldehyde polymer from polypropylene, in the small amount of time and the chemicals that they used to remove it. It just will not happen.

Q. You believe that the published articles, and the authors of those published articles going back over a number of years, you believe all of those scientists that have, many of them for their -- good part of their career, including Dr. Jordi, have tested polypropylene products, you believe that they just missed it, and they were wrong about this whole theory you have?

A. It's not a theory, first of all, it's fact. It's published. It was published in 1949. I think it

was put there for the Jury to understand that formaldehyde does react with proteins to form a composite polymer. Well known.

It's in the surgery literature. I think you used that -- asked me to blanket statement to include everybody that's ever published. No, that's not the case. There are articles I believe where people have misjudged what the effects of that particular chemical reaction we're talking about is on the cleaning of the implant. I believe they think they cleaned it, but they did not. And I don't believe they're polymer scientists.

Q. Was that 1949 article, was that a test of a sample of polypropylene that was removed from a body?

A. No, sir. The 1949 article was an article that describe the chemical reaction between protein and formaldehyde and described the fact that it would make this huge polymeric species. And this is in numerous other pieces of literature that I've read where they talk about fixing the fiber, or fixing the flesh or do histological studies. It's well known in the community that formaldehyde fixes the flesh by forming a polymer, and this is the polymer that I described to you. It's well known.

Q. And do any of those articles you're talking

about deal with -- talk about formaldehyde and polypropylene mesh or sutures coming out of bodies, and that that forms -- are any of them dealing specifically with those products?

A. Well, the chemical reaction --

Q. Well, let me ask you this. I don't mean to interrupt you, but can you answer me if any of those studies or documents that you're talking about, do any of those deal with formaldehyde protein reactions on a polypropylene suture or mesh that came out of a person's body? Do you know?

A. May I tell you what I think you're asking me?

Q. I'm asking if any of those studies, literature that you read deal with those products, mesh product, suture polypropylene product that has come out of a woman's or a human's body. Do any of them deal with that?

A. I don't think I read where they specifically talk about encasing polypropylene, but I've talked about the chemistry will encase whatever it surrounds.

Q. In order to form -- well, let me ask you. One of the things you said you did, you soaked it for 180 hours. Have you ever seen anything in a paper that says soak it for more than two hours or three hours?

A. Yes, sir.

Q. What's the longest you've seen?
A. Well, I think I've seen some papers for up to 96 hours, over a hundred hours.
Q. In polypropylene?
A. Wait a minute, maybe we're not talking the same thing. Would you reask your question, please?
Q. Yeah. I was just saying in a polypropylene product, suture or mesh, have you ever seen any literature the that describes the process of soaking it for 180 hours in chemicals before testing for degradation?
A. To clean it?
Q. Yes, sir?
A. Yes, sir, I have.
Q. For 180 hours?
A. I don't know 180, I've seen over a hundred.
Q. And when you cleaned it afterwards, there was pieces that came off that you actually, I think, scraped off, is that right?
A. No, sir.
Q. Did anybody?
A. No, sir.
Q. Were there any pieces that came off the mesh?
A. I didn't collect the pieces, sir. I was interested in looking at the fiber itself.

Q. Did Dr. Ong collect the pieces?
A. No, sir, not to my knowledge.
Q. Does Dr. Ong work for Exponent?
A. Yes, he does.
Q. And he did the FTIR testing for you?
A. No, sir, he did not. I did the testing.
Q. What testing did he do?
A. He did the cleaning of the explant, sir.
Q. And does he work for a company called Exponent?
A. Yes, sir.
Q. You understand that Exponent has been paid millions of dollars by the mesh companies?
MR. NOTEWARE: Your Honor, I'm going to object. There is no foundation, no evidence for this.
THE COURT: Overruled.
Q. Do you know?
A. I don't have any idea, sir.
MR. CARTMELL: Do we have Dr. Ong's deposition testimony at 12613, page 74.
Q. Have you ever read his deposition?
A. Yes, I have but it's been awhile.
Q. It says.
QUESTION: You preserved the material that was removed from the outer layer of those meshes

so they could be tested, right?

ANSWER: And I have preserved them, I have preserved the solutions.

Do you see that?

A. I do.

Q. If you go down. It says.

QUESTION: Hold on, you preserved the solution in this case?

ANSWER: Yes, I did.

QUESTION: Where are the solutions located?

ANSWER: They're sitting in our lab.

Have you ever seen those?

A. I don't remember it. No, I have not.

Q. Then if you go down?

QUESTION: Why haven't you tested the solutions for the presence of polypropylene?

ANSWER: That was not within my area of expertise.

Do you ever see that?

A. Yes, sir.

Q. Now, have any of those solutions that were removed from the explant from Ms. Batiste, have those ever been tested by anybody?

A. I don't know. I haven't tested them. I

haven't looked at them.

Q. I think he testified that they're in his office in a tube or something like that. If you wanted to, could you test those, or could Dr. Ong at Exponent test those?

A. I don't know what I would test them for, sir.

Q. Could you test them for the presence of polypropylene?

A. I gather so, yes, sir.

Q. And if a material that came off was polypropylene that had flaked off the mesh, what would that tell you, anything?

A. I would not be surprised that there might be some polypropylene in those samples, because as I've testified to before, that when those flakes that are adhered tenaciously to polypropylene break off, small amount of polypropylene comes with it. It's just like a piece of duct tape that you put on a wall and then stretch it off, you're going to take some of the paint with you. So I'm not at all surprised to that. I have testified to that before.

Q. So you got, when you cleaned this surface after soaking it for 180 hours, you got down far enough that you wouldn't be surprised that you were into the polypropylene, and some of that flaked off, is that

right?

A. No, sir, that's not what I'm saying.

Q. How would some of the polypropylene be in the solutions, if you hadn't gotten the outer -- outer layer of it off?

A. I'm making the likelihood or the fact that probably some of it did fall off. And if it did, then it would be in the solution.

Q. And they could be tested, and we could figure that out, correct?

A. Well, perhaps. I would have to test it first to give you a definitive answer.

Q. Okay.

Now, did you read internal documents from Ethicon? Were those provided to you in order to form your opinions in this case?

A. I'm not sure I understand your question, sir. I form my own opinions.

Q. Well, I just mean, did Ethicon through their lawyers, give you Ethicon internal documents? Actually we know they did, that was a dumb question, because you got the seven-year are dog study.

A. Oh, yes, sir. Yes, sir.

Q. And did you read the five-year results of the dog study?

A. I remember reading it, yes, sir.
Q. Okay. Exhibit 4012, we've looked at this before with Dr. Jordi. I'll provide you a copy of that.
A. Okay.
Q. This was the five-year results of the dog study. Just so it's clear.
MR. CARTMELL: This is seven-year.
Q. I apologize. This the is seven-year, not five-year?
A. Yes, sir.
Q. You've talked about this.
1992, and these were pieces of suture that were put in dog's hearts, right?
A. Yes, sir.
Q. This was not a mesh study?
A. That's correct.
Q. And if you go down to the first paragraph, or excuse me, the second page it says IR Spectra obtained for cracks, PROLENE specimens showed possible evidence of slight oxidation, do you see that?
A. I do.
Q. So in the 1992 dog study they showed slight -- they found slight oxidation, and they found cracks, correct?

A. Well, first of all, that's really not what this says. It says possible evidence of slight oxidation. And it goes on to say, A broadened weak absorption at about 1650 reciprocal centimeters.

First of all, we've seen already that we don't have a broad absorption oxidation. When you have carbonyl peaks from oxidation, you get a very sharp one. That was shown in the Wood article.

Secondarily, the 1650 reciprocal centimeters comes from not protein, sir, not from polypropylene oxidation.

Q. So you think these Ethicon internal scientists, who were looking at the dog study that they did, when they say that they showed possible evidence of slight oxidation, your belief is they didn't see any oxidation, correct?

A. I believe that they're misinterpreting the fact that the 1650 broad peak, that's protein.

Q. Okay. Do you disagree or do you agree with them that they saw cracked PROLENE specimens?

A. Well, I have to look at the totality of the data that's been collected here in order to give you a good answer for that.

And the totality of the data from Mr. Berkeley, and his colleagues is the fact that there

bass no change in molecular weight of the polypropylene after seven-year dog study.

There was improvements in the physical properties after seven years. The dog study, as we pointed out in our charts.

There is no indication, therefore, that there was a crack that would adversely affect or deteriorate the polypropylene after seven years in the dog study.

The facts are just not there.

Q. Jamey, would you mind pulling this up.

So what you're saying is you think they probably just misinterpreted what they the found?

A. I think so.

Q. They were wrong, in other words?

A. I don't think they looked at all of the factors and put it together, sir.

Q. Okay. This is the slide you showed from the dog study, correct?

A. Yes, sir.

Q. Does this slide deal with dog 1995 at the top?

A. That's what it says, sir, yes, sir.

Q. Right. Admittedly there were some dogs that didn't show degradation in this study, correct?

A. Well --

Q. First of all, is that true?
A. There were dogs that had different results. There were dogs where they didn't see any cracks.
Q. Right. What you've shown here at the top is a dog where they the say, the scientists from Ethicon in 1992, that they say there was no degradation. That's what had you've shown at the top, correct?
A. That's what they say is no degradation.
Q. Right. And the scientists concluded that there were other dogs, or PROLENE that came out of other dogs, where they did find degradation, correct?
A. Well, that's what they said, but that's where the molecular weight data comes in and didn't all mesh out to show the total picture.
Q. So if you go to the conclusions of this, let's go back to 4102, of this seven-year dog study.
A. Yes, sir. Do you want me to turn to that, sir?
Q. Yes, please. Or you can look at it.
It states, Degradation in PROLENE is still increasing, and PVDF, even though a few cracks were found, is still by far the most surface resistant in-house made suture in terms of cracking.
Do you see that?
A. I see that.

Q. Again, you showed previous documents dated previous dates, and this was -- and I understand you don't agree with it, this is Ethicon's 1992 conclusion of whether or not there was degradation they saw, correct?

A. Ethicon employees, yes, sir.

Q. Have you ever seen the 1987 PROLENE test from human sutures that were taken out of humans where they tested for degradation at Ethicon?

A. I don't believe so, no, sir.

Q. 4128. This was actually a document that was produced to us by Ethicon, actually just real recently. I think maybe after -- after your deposition, actually. A few days before trial. And you've never been provided this, it sounds like?

A. I have not seen this document.

Q. If you go down it states, IR microscopy of explanted PROLENE received from Professor R -- is it Guidoin?

A. Yes, I would say so.

Q. Professor Guidoin ends up being later on publications relating to degradation, correct?

A. I've seen a lab sheet from Professor Guidoin, yes, sir.

Q. Below that it states, samples of PROLENE

suture carefully removed from human vascular graft explants received in Professor R. Guidoin were examined by IR microscope, quote, as is?

A. Yes, sir.

Q. A PROLENE suture control was examined for comparison, and the samples are described as follows. Do you see that?

A. I see that.

Q. Below it gives examples of what they found. And they give the duration that these sutures, again, this is not mesh, this is smaller pieces of suture. They show what they found. At two years, they found no cracking. And at eight years, they found severe cracking on several of the sutures that they examined, is that correct?

A. That's what it says, sir.

Q. And then if you go down it says, Using a needle -- in the bottom paragraph.

It says, Using a needle, the cracked surfaces were easily wiped off and deposited on a KBr window. The surface scrapings had the handling and consistency of a waxy snow. The sample was not conducive to IR microscopy in this form, however. Similar treatment with needles on sterile packaged PROLENE and the two year sample generated no scrapings.

Do you see that?

A. Yes, and I'm not surprised.

Q. At this time they actually scraped off some material from these, right?

A. Yes, I'm not surprised.

Q. Then under the conclusion section on the next page I want to ask you a few questions about this.

A. Okay.

Q. 1987, the first paragraph says, The amount of DLTDP is reduced in the sutures. No DLTDP is observed in the surface scraped cracked regions.

A. I'm not surprised.

Q. And you talked about, I think, I can't pronounce the word either, but DLTDP, that's one of the antioxidants?

A. That's one of the two.

Q. Is that the one that is for longer term protection?

A. They're both long-term protection. They work synergistically with each other. Together they're better than either one alone.

Q. We talked about with Dr. Jordi sort of the bodyguard that will protect it inside the body, correct?

A. Would you please restate that, sir.

Q. Dr. Jordi talked about how you could think about it in layperson's terms, sort of as the Santonox and this, as sort of a bodyguard that would protect the PROLENE or the polypropylene inside the body from degradation?

A. I prefer to say it's there to give it longevity.

Q. Okay, longevity. What they found, they found that didn't exist on the scrapings, correct?

A. On the scrapings, and I'm not surprised.

Q. And then it says, No protein is observed in any spectra of the explanted sutures. Do you see that?

A. I do.

Q. So they didn't find protein on the sutures on the ones even that were explanted after eight years, right?

A. That's what they say.

Q. You disagree with that?

A. Well, sir, you're asking me a question about something I'm just now looking at here. There's a number of spectra. If you don't mind, I'll take a second look at them.

Q. I was going to ask you about the third conclusion, too.

A. Okay, sir.

Q. The third opinion states, The surface scraped material from the cracked regions of A30035 has a melting range of indicative of degraded polypropylene. Do you see that?

A. Yes, sir.

Q. IR spectra of this scraped material is clearly polypropylene?

A. I see what it says, yes, sir.

Q. Just like what Dr. Jordi did in 2013, I believe, the scraped material was taken off the PROLENE, it was tested, and it tested to be polypropylene. Correct?

A. That's what he says, yes, sir.

Q. And they found in this 1987 test that Ethicon did that when they looked at this material, it had a melting range that told them there was degraded polypropylene.

Do you disagree with that?

A. I see what it says, sir, but I believe I can explain to you why there's a depressed melting point that's not being mentioned here. I think I know why that is.

Q. Let's, first of all, get clear. These scientists, at least from Ethicon --

A. Yes, sir.

Q. -- I guess I know where you're going, but they concluded that there was severe cracking and degradation, correct?

A. What is said here was said. I'm not arguing about what's written here.

Q. You would agree with me that based on your review, you're a polymer scientist, these scientists at Ethicon concluded that there was severe cracking and degradation of the PROLENE, correct?

A. That's what they say.

Q. And I understand your testimony is you disagree with them, is that right?

A. Well, I have a reason for it, it's not just --

Q. I'm not disputing that. I'm sure you have your reasons.

A. I think there are other factors that need to be looked at before this was written up.

Q. Okay. I'm going to let you talk about that with the attorney who hired you, so we can move on and go.

A. Okay.

Q. Now, you also reviewed, in preparation for your opinions the -- is it the Mary Celine article, is that right?

A. Yes, sir.
Q. And that is an article Exhibit 4114, a 1998 article where --
A. May I have that, sir?
MR. CARTMELL: Yeah, let me get it.
Q. So this is Mary Celine. This is in the ASAIO Journal in 1998, Mary Celine and several other investigators?
A. Yes, sir.
Q. Do you know any of those authors?
A. No, I do not.
Q. Do you know whether or not they're polymer scientists?
A. I do not.
Q. In this study in 1998, they actually looked at PROLENE, the same material that's used in the mesh, is that right?
A. Yes.
Q. And they compared it against PDF, did they not?
A. That's correct.
Q. Actually, that's what the dog study did, they compared PROLENE to the PDDF, is that right?
A. Yes, sir.
Q. If you go to page 2002?

A. You mean 202.

Q. Oh, yeah, I'm sorry, 202. I'm losing it, I'm losing my brain.

It says -- in the right-hand column, sir, it says, After one and two years of implantation the surface of the retrieved and cleaned VF sutures did not appear to be substantially modified. In contrast, the polypropylene sutures explanted one and two years postoperatively showed evidence of surface deterioration, characterized by uniformly spaced circumferential cracking and peeling and flaking of the polymer material in the outer most surface layer.

Do you see that?

A. I do, and there's a reason for that.

Q. What's the reason?

A. The reason for that is these particular explants were fixed in formaldehyde and other aldehydes as well. So there was a reason for that material, the formaldehyde protein layer to form around that explant, and that's what in my opinion she is seeing. It did not -- so we're looking at essentially the same kind of chemistry that we've been talking about here today.

Q. So you also -- because they didn't mention anything about that, right?

A. Yes, they did. She talked about how far they

fixed the fibers they used glutaraldehyde.

Q. I didn't mean that. You're right, they did fix it in formaldehyde.

A. Right.

Q. But their conclusion in the study was that polypropylene degrades in PROLENE, correct?

A. Well, I don't know that they used the word degrade. Can you point me to that?

Q. I was just saying it showed surface deterioration characterized by uniformly spaced circumferential cracking and peeling and flaking of the polymer?

A. Surface would be the protein formaldehyde polymer, that's correct.

Q. Their conclusion was that it was polypropylene, not what you say that it's a film that's put over it as a result of formaldehyde, correct?

A. Would you restate your question, please?

Q. Sure. You disagree with these investigators because what they had concluded was cracking -- the peeling and cracking and flaking that they saw, they concluded that that was polypropylene that was peeling and flaking, right?

A. I believe they did, and I don't agree with that.

Q. So you disagree with all of these investigators as well?
A. I do.
Q. If you look at 203, in the right-hand column, it states -- in the end of the first paragraph it states, It has long been known that polypropylene is susceptible to degradation by several different initiation phenomenon including thermal, mechanical, photochemical, radiation, biologic and chemical mechanisms.
Do you see that?
A. I see it, yes, sir.
Q. Do you agree with that?
A. Just one second, please, sir.
I believe that that is possible under certain conditions, which were not here in this piece that was explanted.
Q. Would you agree with me that soaking the explant in chemicals for 180 hours could cause the explant to swell?
A. Depends on what it was soaked in, sir.
Q. In the chemicals in which you soaked it in, would you agree with that?
A. I don't believe so because I've measured the explants in the cleaning that we did, and it was

essentially the same as the pristine sample, so, no, not in my case.

Q. Well, did you measure the explant before you soaked it in the chemicals?

A. Yes, sir.

Q. You have a measurement before and after?

A. Yes, sir.

Q. And the pristine as well?

A. Yes, sir.

Q. I'm trying to cut out some stuff here.

A. Thank you.

Q. Your opinion in this case is that the protein formaldehyde theory causing a cracking on the surface of the mesh fiber is a novel opinion, correct?

A. No, sir. No, it is not. I pointed out to you what's novel about this is that people haven't noticed this 1948 reaction and noticed that it is encapsulating and reacting with proteins. The fact that it happens is not novel at all. It's 60 years old. I just don't understand why people haven't noticed it.

Q. Let's see page 358, lines 5 through 24.

QUESTION: All right. So your opinion, some of your opinion are novel opinions?

ANSWER: Well, they have been and they

may well be they may not be.

QUESTION: Including your opinions that the cracks observed on the explant material, both prior to and after the 20 step process, is protein.

Then if you go to 359, 1 through 10.

A. It says, I don't know if it's novel or not. I believe.

Q. Including your opinions that the cracks observed on the explant material -- I read that -- both prior to and after the 20 step process is protein.

ANSWER: I think I've testified that it's protein formaldehyde encasement.

QUESTION: A novel idea?

ANSWER: I don't know if it's novel or not, I haven't seen it before. And other people may well know that, but -- what I've read in this particular matter, I haven't seen expressed.

In fairness to you, right, you just haven't seen anybody else that's ever had that opinion. They may have had it, you've just never seen it.

They may have had it, you've just never seen it.

A. And I'm really surprised.

Q. And you can't tell us whether your opinions in this case are generally accepted in the scientific

community, correct?

A. Well, now, I wouldn't go that far. I believe my opinions, what I've stated, would be accepted in the scientific community.

Q. 358. Five through 24.

Your ideas aren't generally -- your opinions regarding protein aren't generally accepted in the scientific community, are they?

ANSWER: I don't know whether they are or not.

A. I believe my point was, if I published this article then I would have a means of knowing whether it was accepted by the scientific community. I haven't published the article, so how would I know if the scientific community accepted it, but I believe if I published it they would.

Q. My point is, as of today, there hasn't been anything published on it, so we don't know?

A. There has been, sir.

Q. I'm just talking about your opinions related to polypropylene mesh like you're giving in this case, that when it's soaked in formaldehyde after it's explanted from a woman's pelvis, and that that creates the reaction. I understand there's a 1949 and some other articles about the reaction, my opinion, what I'm

getting at, there is just no published literature to support the opinions so far that you're giving other, than that there's this reaction?

A. No, that's not true.

Q. Okay. What other --

A. There's published documents in the surgery manuscript and procedures about fixation to tissue with formaldehyde and it's available for doctors to read. I read one last night. I don't remember the article, it's there. It's in the surgery journals.

I mean, the histologists know it. They use formaldehyde to fix their samples with.

Q. When you were under oath and you were asked the question, you said, I don't know whether they are or not, didn't you?

A. I think that's a little out of context, sir. I don't believe I meant that like that.

Q. Now, in Ethicon's dog study that we've talked about where the sutures came out, they did not use formaldehyde in that study, correct?

A. That's correct, sir.

Q. And the scientists who were doing the study concluded that there was cracking and degradation, correct?

A. That's what he said.

Q. The 1987 study concluded that there was degradation of polypropylene, correct?
A. Well, let me go to 1987 here, sir. Where are you, sir?
Q. 1987, they looked at that and determined that there was severe cracking and degradation, correct?
A. What line are you, on, sir? I must be missing it.
Q. This is what we just looked at, sir. We looked at the severe cracking on the first page. Second page, we went through the conclusions that talked about degradation, and you said you disagree. Do you remember?
A. Well, I disagree with a lot of the -- well, with some of the opinions that have been expressed here, and the interpretation of the data.
Q. Okay. Let's go to the next slide. The 1992 Ethicon dog study, you also agree with the conclusion of degradation there, correct?
A. 1992.
Q. That's the seven-year dog study?
A. Did you say agree?
Q. No, you disagree?
A. Yes, I do.
Q. You disagree with the 1998 Celine Mary,

article, correct?

A. Yes, sir.

Q. Go ahead.

You also reviewed the 2007 Costello article that concluded that the explanted polypropylene did undergo degradation while in vivo. Do you remember that article?

A. Would you show it to me? I believe they fixed that in formaldehyde, too, didn't they, sir?

Q. Do you remember it? I'm not sure I have it. You testified at your deposition that you reviewed it. Do you remember?

A. Yes, I believe it was fixed in formaldehyde, too, sir.

Q. And they concluded that there was degradation?

A. By virtue of looking at the fibers that cracked, my opinion has always been that that was the protein formaldehyde polymer. They didn't identify polypropylene as the cracked material.

Q. So you disagree with these authors as well?

A. I do by virtue of the fact that they didn't understand all of the facts of their article.

Q. Okay.

You also looked at the Clave article. 2010

Clave article. Conclusion, these studies showed the polypropylene meshes undergo degradation while in vivo. That means in the body?

A. Yes, it does.

Q. These were actually mesh that were taken out of the women's bodies, correct?

A. That's right, a hundred of them, a hundred explants.

Q. Hundred explants, and they concluded that there was degradation, and you disagree with those authors?

A. They concluded that there they could make no determination whether there was degradation or not at the last of this particular article.

Q. Page 8?

A. If you go to the last of the article.

Q. Okay.

A. And read the conclusions. There is not enough evidence to show there was oxidation. And they're concerned about the fact that there are esters present, which is true from triglycerides, that show carbonyl peaks, and they can't distinguish whether the carbonyl peaks are from oxidation or triglycerides.

Q. Okay.

A. But that particular article, a hundred

explants could not prove that Ethicon's material oxidized.

Q. Let's look at the conclusion.

For transvaginal surgery, clinical experience indicates the use of low density large pore implants emitted from a monofilament to facilitate tissue integration and decrease the inflammatory reactions.

This study, however, brings into question the prevailing understanding of polypropylene as inert when used in vaginal surgery for pelvic floor repair procedures. Right?

A. Yes, sir.

Q. Is that what you're basing that on?

A. No, sir. They're various sections in there about VSC analysis, and FTIR analysis and several hypotheses persist concerning the nature of polypropylene in vivo degradation.

That's the part I'm talking about.

Q. Several hypotheses persist concerning the nature of polypropylene in vivo degradation, that sounds like they think there is in vivo degradation?

A. We're just taking words out of there. We're going to have to do a lot of reading here before I get to what I want to you see.

Q. Large detachments and hematomas are one of

the characteristics of the vaginal route and ultimately result in the massive accumulation of blood derived fatty acids. The diffusion of organic molecules into the polymer especially esterified fatty acids or cholesterol may be a cause of the polymer structured degradation.

A. That's absolutely false.

Q. You disagree with what --

A. Absolutely. Because what those polyesters do, they're plasticizers. And as a matter of fact, that's very well known chemistry. If you want to see that, you can look under a manuscript, Polypropylene A to Z. It will describe to you in there that chemistry where polypropylene is plasticized by that. And that article did not say, did not conclusively conclude that polypropylene is degraded, although it implies it from its title. It's an unfair title, in my opinion.

MR. CARTMELL: Thank you, that's all I have.

THE WITNESS: You're welcome, sir.

THE COURT: Mr. Noteware.

REDIRECT EXAMINATION

BY MR. NOTEWARE:

Q. Dr. Thames, have you ever testified before on behalf of Ethicon, Inc.?

A. No.
Q. Have you ever testified before on behalf of Johnson & Johnson?
A. No, sir.
Q. When you got the samples, and you felt that there was a need to clean them -- well, first of all, what is ASTM?
A. The American Society of Testing Materials.
Q. And was there a protocol that was set out in the ASTM as to how to clean off this protein formaldehyde cross link polymer?
A. No, there was not.
Q. So you had to do something on your own. You had to make up your own protocol?
A. I did.
Q. And did you make up a protocol that you thought was scientifically intellectually valid in an effort to clean off this cross link polymer from the fiber, so that you could examine the fiber?
A. I did. If I didn't get the cross link polymer off, how could I examine the fiber?
Q. Now, Mr. Cartmell spent some time talking to you, and asking you, do you have any articles that say that this reaction between protein and formaldehyde would occur over the polypropylene.

Would this same reaction occur whether or not there was any other polymer around? Do you have to have it being around polypropylene in order to have this reaction?

A. Absolutely not. It will occur anywhere around anything.

Q. So the fact that there may not be an article that says this reaction is around polypropylene, is that proof that your thesis and your theory is wrong?

A. No, sir, it is not.

Mine is not a theory, it's fact.

Q. All right. What is Teflon?

A. Teflon is a nonstick free agent. I think we've all heard of it. It's a material that our frying pans are made out of, so our eggs and our bacon won't stick. Well, eggs primarily. Bacon has enough fat it doesn't need that. But it's nonstick surface, nothing will adhere to it.

Q. How about this PVDF?

A. Polyvinylidene fluoride.

Q. You heard Mr. Cartmell talk about that and talk it in about the Celine Mary article?

A. Right.

Q. And saying, that well, they didn't find any of the, the -- they didn't say that, but they said

there was nothing covering it, and there was something covering the polypropylene.

Is there an explanation for that, a chemical explanation for that?

A. In my opinion, yes, sir. May I step down and use the white board?

Q. Why don't you do so. You don't need this up here, do you, what's already on here?

A. No, sir.

Q. I hope that means something to you?

A. Yes, sir, it does. It's all in the chemistry, Mr. Noteware.

Q. All right. Why don't you tell us what that means?

A. Well, I've drawn the basic structure of polypropylene, that's the unit of polypropylene that we talked about here today. And then this is polyvinylidene difluoride.

Q. That's the other?

A. That's the other fiber that's made from this product right here.

And you notice it has two fluorine atoms on this carbon rather than a methyl and a hydrogen in a polypropylene.

And then this is Teflon. Teflon has four

fluorine atoms on the two carbons. What we're looking at here is a completely nonstick material that everybody in this room knows things won't stick to.

We also know that materials will adhere to polypropylene. We've shown that.

This is a hybrid structure between that material and that material. And therefore because of its polarity, and because of these two fluorine atoms, it's going to be less likely for any materials to adhere, and polypropylene, but not quite as good as Teflon.

Q. Does it surprise you then that the -- this new cross link polymer that we're talking about did not adhere to the PVDF, but it did to the other?

A. It wouldn't surprise me that it didn't adhere to it. It would still encase it, but it may well not adhere to it, but it definitely will adhere to polypropylene, because of its chemical structure.

Q. Again, in those same pictures that showed the circumferential cracking --

A. Yes, sir.

Q. -- around it. And is that subject to the same thing as you're talking about when you're talking about your arm and how -- why it is more proof positive, in your mind, that that's new encasements

that's there, that hardened encasement?

A. Yes, sir.

Q. All right. Back to the Celine Mary article. Let's talk about the Clave's article. Mr. Cartmell didn't --

MR. NOTEWARE: May I approach the witness, Your Honor?

Q. -- he didn't tell us all that was in that article. Now, you were trying to get to him.

Why don't you read to the Jury what it says there that I've got highlighted.

A. This is page 206 in the Clave article that talks about comparative analysis of 100 explants, and it says, this is under Polypropylene implants are altered in vivo. Several hypotheses concerning the degradation of polypropylene are described below.

Editorialize, it's a hypothesis, it' not a fact.

Q. Okay.

A. None of these, particularly direct oxidation, could be confirmed in this study.

Q. None of these, particularly oxidation.

A. Could be confirmed in this study.

Q. Mr. Cartmell didn't mention that, did he?

A. No, sir. That's what I was trying to get to

but didn't manage to make it there.

Q. Does Ethicon, Inc., have any polymer scientists employed, to your knowledge?

A. I don't know, sir.

Q. Okay. When they were talking about that thesis and the article that said the eight years, you indicated that there was something else that you wanted to say.

A. Well, I noticed in one of the lab notebooks that the -- it was pointed out that Dr. Guidoin, who gave up his explants for them to look at, that they were eight years old. And in order for them to be eight years old, and to not be petrified, or putrid, so forth, they would have had to be been fixed in protein or with formaldehyde, and would have had to have been encased by the same material that we've been talking about here today.

There is no way they could have been eight years old.

Also, he points out in there that this possible oxidation, and I believe he talks about an absorption peak at 1650 reciprocal centimeters. That peak is not consistent with oxidation of the C double 1 O, it's a protein. Although he makes the statement that there's no evidence of protein, it's a protein.

That is a protein peak.

So he has missed it.

Q. Now, we saw earlier today the spectra, and it was of protein, and how there are specific fingerprints that indicate that something is protein.

A. Yes, sir.

Q. And is the reciprocating centimeters, whatever those are, is that one of those peaks?

A. Yes, sir. It's an energy level where proteins absorb energy. Yes, sir.

Q. When the explant was cleaned, were chemicals used to clean -- and this is by Dr. Ong?

A. Yes, sir.

Q. Following your protocol?

A. Yes, sir.

Q. Were chemicals used to clean the explant?

A. Yes, sir.

Q. If you were to go now and test the solution, or the residue that was pulled off, or was -- I don't know how you talk about it, I'm afraid I'm not a chemist as you can --

A. It's the waste.

Q. The waste. If you were to go over and examine that, would that give you any meaningful data at all?

A. No, sir. I wanted to look at the fiber itself, not what was encasing it. I've already proven by FTIR spectroscopy what's encasing it, and by virtue of the chemical reactions that take place, which is extremely well known, 60 years. So I wanted to look at the fiber itself, see if it showed any signs of degradation.

Q. So when you looked at the fiber itself did you see any signs whatsoever of oxidation?

A. No, sir.

Q. And if there weren't any oxidation, there wouldn't be any degradation?

A. That's correct, sir, not by oxidation.

Q. You heard all of the questions that were asked to you by Mr. Cartmell?

A. Yes, sir.

Q. Have they changed in any way your opinion, sir, that there was no degradation that was existent with regard to the mesh that was explanted from Ms. Batiste?

A. No, sir.

Q. All of the questions, and all of the articles that Mr. Cartmell has brought up, have they in any way changed your opinion that there was no oxidation of the mesh that was taken from Ms. Batiste?

A. No, sir.
Q. Has it in any way changed your opinion, sir, that there was nothing that impacted the functionality of the mesh that was in Ms. Batiste?
A. From a chemical perspective, no, sir, certainly not.
MR. NOTEWARE: I have no other questions.
MR. CARTMELL: Real briefly.

RECROSS-EXAMINATION

BY MR. CARTMELL:
Q. You're not here to give any opinion about whether or not the TVT-O PROLENE mesh, when it is implanted in a woman, ropes or curls or loses particles, correct?
A. No, sir.
Q. Or whether or not it has sufficient porosity or is too heavy to be placed in a woman's pelvis, correct?
A. That's not my field, sir.
Q. Thank you. I have nothing further. Thanks.
A. Thank you.
MR. NOTEWARE: One quick one, Judge, maybe two, but no more than that.

REDIRECT EXAMINATION

BY MR. NOTEWARE:

Q. You indicated it wasn't your field. Did you notice Dr. Jordi was able to talk about inflammation. Is that part of polymer chemistry, sir?

A. Not part of what I can talk about, no, sir.

MR. NOTEWARE: Then I have no further questions.

THE COURT: Anything further?

MR. CARTMELL: No.

THE COURT: May this witness be released?

MR. CARTMELL: Yes, Your Honor.

THE WITNESS: Thank you, sir, I appreciate it.

Ladies and gentlemen, we'll be in recess until 9:15 a.m. Monday. Remember my previous instructions. Do not search for, view, listen for any matter in any way connected with this case, or the issues presented in this case.

Thank you, we're in recess.

(Jury out)

THE COURT: All right, what's our scheduling look like now?

MR. NOTEWARE: Dr. Anhalt obviously didn't get on today, he can't be available Monday. He

is our last live witness, I believe, Judge, so we have depositions that we can put on.

THE COURT: All right.

MR. NOTEWARE: I honestly don't know how long they are.

MR. GAGE: Four to six hours, we're going to work with my team this weekend, see if we can't get that much closer to four, if not less than four.

MR. NOTEWARE: So what I suggest, we're going to start obviously Monday morning, let's do as much of the video deposition as we can, and then work on Monday afternoon on the charge. And then Tuesday we'll finish Dr. Anhalt, and I think we'll be done, Judge.

They have -- they have the right to call rebuttal witnesses, I will grant them that right, Judge.

MR. CARTMELL: Thank you.

MR. NOTEWARE: You're welcome.

THE COURT: I want y'all to send me, email me your proposed charges. I want to -- so I can work on them remotely.

Can you do that? Just have somebody email them to me.

MR. NOTEWARE: Do we have your email address, Judge.

THE COURT: I'll be happy to. Do you have email, Mr. Noteware?

MR. NOTEWARE: My client is here, Your Honor, I would appreciate the Court, please, please.

THE COURT: I don't want anybody to get the wrong opinion. Mr. Noteware and I have known each other for three or four years. For three or four decades.

MR. NOTEWARE: Closer to it, Judge.

THE COURT: And this is not the first time we go back and forth.

MR. NOTEWARE: I don't hold it against you, Judge.

THE COURT: And I don't hold it against you either, Mr. Noteware. KMolberg@DallasCourts.org. And I need those as soon as I can get them and you can send me revisions. This is not an invitation to talk about the case generally.

MR. NOTEWARE: No, this would be just a hardcore, like we would file something. I don't think we ought to be arguing anything.

THE COURT: I want them in Word or WordPerfect format and I want you to copy your

opponents when you send it. I need them as quickly as possible. We're doing a complete email boot on our server, I need them before noon Sunday.

I would prefer to have them tonight.

Anything else we need to discuss?

MR. CARTMELL: No, Your Honor.

(Continued to March 31, 2014)

THE STATE OF TEXAS

COUNTY OF DALLAS

I, SHARRON RODRIGUEZ RANKIN, Official Court Reporter in and for the 160th Judicial District Court of Dallas County, State of Texas, do hereby certify that the above and foregoing contains a true and correct transcription of all portions of evidence and other proceedings requested in writing by counsel for the parties to be included in this Volume of the Reporter's Record in the above styled and numbered cause, all of which occurred in open court and or in chambers and were reported by me.

I further certify that this Reporter's Record of the proceedings truly and correctly reflects the exhibits, if any, admitted, tendered in an offer of proof or offered into evidence.

WITNESS my official hand this the 28th day of March, 2014.

/S/

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